

JUST USE ONE

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THE INFINITE LOOP

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Equipment used:

Commodore 64/128 machines with Jiffy Dos, REUs, CMD's SCPU w/ 16Mg Ramcard & RAMlink, Geos/Wheels OS, PostPrint, Phaser 860DP Tektronix Color Printer by XEROX. Some designs were created with Adobe Illustrator and saved as either jpgs or EPS files.

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We invite questions, ideas and comments!!

Cover: A photo of our beloved machines. Photo is filtered with a texture mode. Photo by Earl-Y Designs.



Earl Fishbone Williams Editor-in-Chief

April 2003

I have received several e-mails and letters with positive comments for The Infinite Loop. Thanks very much! My goal is to get at least one hundred (100) subscribers and multiply; therefore, I have gathered up addresses from our club's (WCCUG), Mailink, interested individuals via e-mail and Lucki's mailing list to publicize The Infinite Loop. You will be dropped from the list after the next issue if you do not subscribe. I used a heavier paper for the cover (90lb.), I intend to continue this with a little lighter weight (65 lb.) in the future. I appreciate your comments.

Jake is "on vacation"; subsequently, I am glad to announce our first submission by Gilliam (Gil) Parrish from Beggs, Oklahoma. Gil is a past President of the Tulsa Users' Group and something of a

Commodore collector. He also wrote a couple of articles for dieHard in the Collector's Corner and the Kim-1 article continues on that theme. You can count on seeing more from Gil.

On a personal note, unfortunately I will be having "minor" surgery at the end of March but should be up and at 'em in no time. This is also a troubling time because of the war. I hope it ends soon.

I would like to note that Jeri and her CommodoreOne has a couple of email groups on Yahoo and are very active. CommodoreOne@yahoo.com and C-OnePeripherals-subscribe@yahoo.com I will put some of the interaction and announcements from these groups in later. There are rumours that Jeri will have a board ready at the spring EXPO. I hope to be there..

With the advent of the C-1 we may no longer need to keep closets filled with 64s and parts. 128 users will always be in a particular niche. Others will turn to or continue to use an emulator. All are relevant to this publication and I hope you have something to write.



ANNOUNCEMENTS AND NEWS FROM AROUND THE WORLD

The dates for the Classic Gaming Expo 2003 have been announced. See below. Once again the Fresno Commodore User Group is planning to have a table at this event, showing the best in Commodore games and selling a bit of C= hardware and software. Perhaps we may even have a CommodoreOne on display... if I get one in time! :-)

Truly,

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Robert Bernardo
Fresno Commodore User Group
<http://videocam.net.au/fcug>

MEMBERS

Mermaid and TMT were kicked from Protovision for inactivity. They are invited to return to the group once they become active for Protovision again. JSL left Samar and Civitas, so he's currently in Protovision only. He is still open for painting graphics for these groups though. JSL would like to join a high-quality-demo-group. Email offers to jsl270374@hotmail.com

TEAM PATROL

If you enjoyed Moon Patrol and Decathlon, you'll love Team Patrol! This engrossing racing game can support up to four simultaneous players using Protovision's recently improved 4 Player Interface and, along with Bomb Mania, is an excellent party game which comes highly recommended. Team Patrol supports 1541, 1581, 1571, CMD FD-2000/4000, CMD HD and CMD Ramlink and, if you own a SuperCPU with SuperRAM, you will be able to enjoy the game as a single load! The game is being shipped on 1541 or FD disc along with a printed manual as well as a colour printed disc label. If you would like to know more about Team Patrol and other Protovision products, you should check the following URLs: www.protovision-online.de www.zap.to/protovision-previews

PAC IT

World 1 of PAC IT, the ultimate Pacman for up to 4 players, is 90% complete (18 out of 20 levels are designed) and looks awesome. New screenshots are available at Big User's Homepage: www.zap.to/protovision-previews (in German language only).

METAL DUST

There was a lot of progress concerning the last two levels. Status: Level 3: 100% Level 4: 90% If you want to support the first game for the SuperCPU and own a homepage at the same time, install the Metal Dust button (88x31 Pixel) on your website. The button should link to www.zap.to/protovision-previews and this is also where you can pick it up. This campaign will end a few weeks before the release of the game. If you want to take part, send an email to biguser@gmx.de - then your full name and your website address will be published in the end sequence in the list of supporters.

REEL FISHING

DreamLoad has been installed in the game. JSL got a big task for doing graphics. Some parts from the fishing-part have been recoded.

ARMAGEDDON - SPRITE- & CHARACTER SET GRAPHICIANS WANTED

Protovision is looking for graphical support for their shoot'em up project ARMAGEDDON. Mostly needed are all kind of smaller enemies aswell as big bosses with animation phases not larger than 5 sprites in width. If you are interested, mail some examples of your work to biguser@gmx.de. If 10 people would contribute 5 small enemies each, there would be enough sprites for the whole game. The graphics should be similar to the Trenz style. Of course everyone whose stuff gets used will be credited in the game. One graphician has been found already. Follow the example of PAUL FINCH: he will support the project with his graphics.

VISION PARTY

It's official: Vision 2003 will take place from 6th to 9th June 2003 so it's taking

place over four days including Whit Monday! The location has changed again, it's square shaped this time (so no full corners like last year) and several metres larger! How many C64-parties have expanded like this? ;-) When? Where? How?

Start: Friday, 6th June 2003 - ca. 16.00 h

End: Monday (Whit Monday), 9th June 2003 - ca. 14.00 h

Entrance fee: 20 Euro (includes breakfast buffet)

Place: Parish Hall (Gemeindehaus)

Uetersen, near Hamburg

Misc stuff:- meet Protovision in person- see exclusive previews of new C64 games- breakfast buffet for free- free beer (Carlsberg Ice) while stocks last (we have at least 2 palettes)- bigscreen with video projector- easy to reach by car via highway (A23) (see map on the Vision homepage)- shuttle service from Pinneberg station or Tornesch station by appointment only- room for about 40-50 people- separate sleeping room- currently there is a negotiation running about using the showers of the gymnasium near by- drinks (Cola, Fanta, MezzoMix, apple juice and Selters) and chips as well as sweets can be bought for reasonable prices (if you have a special request, simply email Courage!)- dinner is going to be ordered from various suppliers (Pizza, Croque, Fast food etc.)- a Burger King is just a 10 minute car ride away- shops, snack bars etc. all near by.

Competitions and rules:

- Demo (executable with "RUN", no further restrictions*)
- Game (executable with "RUN", no further restrictions*)
- Graphic (executable with "RUN", no further restrictions*)
- Music (executable with "RUN", no further restrictions*)

- "Most-Useless-Tool-Compo"
(fun-compo, the more useless the program the better**)*

- Why are there no restrictions?

The visitors of the Vision Party have enough knowledge to differentiate between a demo on the stock C64 from one made on C64 with SuperCPU and to estimate the effort required to complete each project so everybody should do what



he can do best. No matter if it's digi, Quattro-SID, Koala graphics or IFLI, BASIC or Assembler, everything is allowed - the aim is for everybody to have fun!

ATTENTION!

The following hardware will be

available at the party (any other hardware has to be supplied by you): C64 (new and old SID), SuperCPU, CMD-HD, CMD-FD2000, CMD-RamLink, Action Replay, Final Cartridge. Other hardware such as Flash8, C128, C65, Retro Replay and so forth by appointment only.** - If you can't be present at the party in person in order to demonstrate how useless your tool is, please include a short description what it can or can't do! :)

DEADLINE: Visitors can hand in their contributions directly before the competitions. Via snailmail the disk has to arrive by Saturday, 7th June 2003. D64 files can be emailed and should arrive by midnight on the same Saturday. Competition prizes: At the moment we can't tell you about the prizes but Courage

is talking to various sponsors hoping for some good prizes. It will be worth it for sure! Timetable: The timetable is not completed yet, but the following events are planned:

- PROTOVISION- show (presentation of the latest PROTOVISION software and projects)- a large competition show- various fun compos- SID-Disco- an auction, with proceeds going to charity- and lots more! Don't forget to bring:- a good mood!- enough money for entrance, food, drinks, equipment etc.- a sleeping bag, isolating mat, water bed or anything else you'd like! :-)

The party place is located about 15 km in the north west of Hamburg; From highway A23, exit Tornesch it is less than 5 km straight on. Turn twice and 50 more metres and you have arrived. You see, it's very simple! Of course a detailed map will be available online in time and if you still don't find your way, simply contact Courage, okay? For the latest information visit the VISION homepage at www.vision64.de.vu ! Registration? Questions? Suggestions? Criticism? Send an email to Courage/Protovision - courage@protovision-online.de

Latest news:- Courage is currently coding an invitation file on C64.- Some nice prices have been arranged!- Berit (Courage's girlfriend) took the handle MYSTERY and is now a member of the Vision organizing team. HOMEPAGE The homepage move is completed! PTV was changing servers. You may have had problems with the email addresses or the homepage. Not anymore! Now you can even find PTV at two locations in the net: www.protovision-online.de www.protovision-online.com The "About"-Section was updated, also it's now available in English and German language.

MISC COMMODORE SCENE has reduced their prices due to a new production method. The magazine is now printed home-based. For information about Commodore Scene, contact Allan Bairstow at Allan.Bairstow@btinternet.com

LOTEK64 #05 is in the making. For information about Lotek64, contact Lord Lotek at commodore@aon.at XEP1541 adaptors are now available at Protovision for 15 EUR. The XEP1541 adaptor serves as a pair of an XE1541 extended cable and an XP1541 or XP1571 parallel cable, allowing you to reuse your already existing Commodore serial cable and Commodore parallel cable. It's compatible with PS/2, EPP and ECP parallel ports and with Commodore 1541, 1570 and 1571 drives.

The PROTOVISION PRICELIST NOTEFILE has been updated and can be downloaded from Protovision. Protovision has decided to contribute to the prizes to STEPPE & YODELKING'S RIP COMPO, to make the tiring work of ripping all those hard nuts even more enjoyable! So here's the deal: Protovision will pay 20 Eurocents for every point you'll acquire in the compo. For every ripper, not only the first one or the best three. In addition the winner of the compo will receive 5 Euros on top of that! Of course the money is meant as a token for the Protovision online shop, so every cent you earn with your rips has to be spent on Protovision articles. For more information visit: www.demodungeon.com/ripcompo
Milo aka MacGyver/DMAgic/Protovision
c64.sk - C=64 Open News Portal
<http://www.c64.sk>
Protovision - Latest C=64 Hard- and Software
<http://www.protovision-online.de>
The C64 Scene Database - Explore the world of the C64 scene <http://noname.c64.org/csd>
[IRC] Mac_DMA / [ICQ] 49051595 / [AIM] ZwoM64

UDS-10

Homestead mailing list Homestead@videocam.net.au

<http://lists.videocam.net.au/mailman/listinfo/homestead>

I got my UDS-10 yesterday. Left it to thaw out overnight (after riding around all day yesterday in a UPS truck at -25C) and have just hooked it up. I configured it and then tried Novaterm. Top speed for Novaterm is 38400 and it worked just great. I could telnet to my FreeNet Account, login, check e-mail. Everything.

So I know the UDS-10 is working.

Then I thought I would try HyperLink. I recently bought it from Cameron Kaiser. I have installed HLPP on my Linux box. I'm using a Turbo232 on my 128D.

I changed the UDS-10 to 57600 (Hyperlink seems to top out at that. Does it do 115200?) and made sure my HyperLink config was set for that as well.

Enter a Web URL to go to, ATDT LinuxIP/23 and I get the login prompt on my Linux box. Excellent. Start HLPP and I'm away. Pretty good speed. Going to have to check my Graphics helper progs as the images don't come across too clear. My system tells me I have the progs needed but will need to verify if versions are different. Anyhow, all seems fine with HyperLink. Is there a Favorites/Bookmarks capability? Do you have to create your own 'home' page full of favorite links like The Wave uses? Cameron has a good product here. I'm running this on my SCU'd 128D with RAMLink and Turbo232. So how about Contiki? I downloaded that and tried it the other day. Looks like it has a lot of potential. Kudos to Adam and his crew for their work so far. I've got my fingers crossed that they can make it SwiftLink/Turbo232 aware so it can

connect to the net that way. The TFE option is workable but I think more people have the CMD devices.

And I should check out JOS/Wings again. Will it use the UDS-10? Has anyone tried it?

And Maurice is working on upgrades to The Wave so it will work with the UDS-10. That will be cool.

So many OS's. So little time.

What a wonderful pickle to find oneself in as a Commodore user in 2003. Any chance anyone is working on an SSH (Secure SHell) option for the C-64? That would be a nice addition to some/all of these systems.

Bruce Thomas

REFILL KITS

Walgreens sells the real thing, and every few months they have a sale and that's when I stock up. At other times, they are comparable to the prices given by Dave Ross. They also sell Universal refill kits. On sale the black one is \$12.99. It gives about two refills. The color kit is, I believe, about \$19 on sale. When they are not on sale, they are quite a bit higher. (About \$23 black and about \$28 color.)

Dave Ross <watsonc64@attbi.com> wrote: At 03:20 PM 3/10/2003 +1030, Lord Ronin from Q-Link wrote: I am wondering where to get a correct refill for the optra 40. just got a msg back from r. ink at the in place and was told they don't support that model. Any ideas where to look?

I use the "Data Products" kit available from Microcenter. Black (\$21.95 for two refills):
http://www.microcenter.com/single_product_results.phtml?product_id=0050068

Color (\$26.95 for two refills):
http://www.microcenter.com/single_product_results.phtml?product_id=0050076

Activiteiten rond de Commodore: ontwikkelingen van hardware

Vanaf het moment dat de C64 uitkwam zijn mensen bezig geweest deze computer op een of andere manier te verbeteren, of op zijn Engels: te upgraden. Er zijn hiervoor in het verleden maar ook nu nog allerlei soorten en vormen in te vinden. We lichten eens een tipje van de sluier op voor u.

De meest bekende vorm was het upgraden van de ingebouwde software (genaamd de Kernal) om bijvoorbeeld het laden en opslaan van programma's van/op de disk te versnellen. Welbekende namen: SpeedDos, DolphinDos, Exos V3 en JiffyDos. Een volgende stap was de uitbreiding van het geheugen. Hier zijn maar twee versies populair geworden: GeosRAM en de RAM Expansion Unit van Commodore zelf. Beiden zijn insteekkaarten zodat wijzigingen aan de C64 zelf niet nodig zijn. De volgende stap was het upgraden van de processor.

Dat klinkt eenvoudiger dan het is. In de

C64 zit de 6510, een broertje van de bekende 6502. De snelheid van de bus, p1m, 1 Mhz, wordt door de videochip opgelegd en is niet te veranderen. Om een snellere processor te kunnen gebruiken moet men een klein eigen systeem met eigen RAM creëren dat alleen indien nodig gegevens met de originele C64 uitwisselt.

De 65816 is de opvolger van de 6502 en diverse firma's hebben een poging gedaan om deze processor in de C64 in te zetten. Verreweg het meest bekend is de SuperCPU van CMD. Deze wordt nog steeds geproduceerd maar een probleem is dat de SCPU (plus geheugen module) nu niet bepaald goedkoop is. Dus zijn er een aantal mensen op zoek gegaan naar een alternatief.

Het grote probleem is dat er naast de 65816 geen andere opvolger van de 6502 bestaat. Er blijven drie mogelijkheden open:

1) U gebruikt toch de 65816 en u houdt rekening met de beperkingen.

2) U gebruikt een andere snelle processor plus een conversie programma. Het is relatief eenvoudig om een PC-kaartje te maken dat hardwarematig de diverse pinnen van de 6510 emuleert (nabootst). Een programma emuleert de werking van de 6510. U kunt pas snelheid opbouwen indien de PC ook zo veel mogelijk C64-geheugen emuleert. Probleem: nou niet bepaald handzaam.

3) U ontwikkelt een eigen processor met behulp van zogenaamde FPGA's, iemand die bekend is met EPROM's weet dat hier data in geprogrammeerd kan worden. FPGA's kunt u ook programmeren maar in plaats van data programmeert u hier schakelingen in. Met speciale ontwikkelkits is dit al mogelijk voor de gewone hobbyist. Uiteraard zijn er ook een paar 'maars'. Zo'n ontwikkelkit kost momenteel meer dan een SCPU dus op deze manier is er geen kostenbesparing. Met zo'n kit werken is niet het probleem, maar om die processor te kunnen ontwikkelen heeft u toch een behoorlijke vrucht kennis op minimaal HTS-niveau nodig. En als u een werkend IC (Integrated Circuit) heeft moet er ook nog een printplaat ontwikkeld worden welke een verbinding vormt tussen de C64 en dit IC.

Gideon Zweijtzter

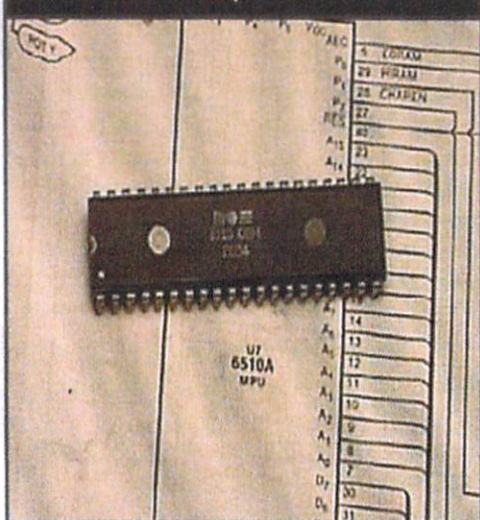
Ons Commodore-gg clublid Gideon Zweijtzter heeft voor oplossing 3 gekozen en zijn eerste stap was het ontwikkelen van de zogenaamde 'core' ofte

wel hart van de processor. In dit geval maakt Gideon gebruik van de taal VHDL. Op internet is veel informatie over VHDL te vinden. Al gauw deed zich echter het eerste probleem voor. Een processor krijgt zijn opdrachten in de vorm van getallen (Engels: opcodes) aangeboden. Met acht bits kun je 256 verschillende opcodes maken. De 6502 maakt niet van alle 256 gebruik. Nu vormen de ongebruikte wel een probleem. Sommige doen niets, sommige zorgen ervoor dat de 6502 er compleet mee stopt en andere doen wel wat. En er zijn programmeurs die om diverse redenen gebruik hebben gemaakt van deze 'illegal opcodes'. De vraag was of Gideon wel of niet deze illegale opcodes moest ondersteunen. Mede om de volgende redenen heeft hij ervoor gekozen ze niet te ondersteunen.

Om compatibiliteitsredenen moet u de originele opcodes met rust laten. Dus om een processor met meer mogelijkheden te kunnen ontwikkelen, heeft u meer opcodes nodig. Dit is ook het geval geweest met de 65816. Deze gebruikt wel alle 256 mogelijke opcodes en ondersteunt de originele illegale opcodes niet.

In de praktijk blijkt dat er weinig van deze illegale opcodes gebruik wordt gemaakt. De meeste SCPU-gebruikers melden dat ze amper problemen hebben. Nu kunt u zich misschien nog afvragen of het misschien niet verstandig is om de nuttige illegale opcodes wel te handhaven. Het probleem is dat er een bepaalde logica is in de opcodes. Wilt u dezelfde logica ook met de nieuwe opcodes handhaven, dan komt u tot de ontdekking dat de nieuwe en

De 6510 processor.



illegale opcodes elkaar in de weg zitten. Erger was dat een rekenkundig model aantoonde dat een processor met bepaalde illegale opcodes veel trager was dan zonder. Het decodeer-mechanisme had gewoon meer tijd nodig om te zien of dit wel of niet een ondersteunde illegale opcode was.

Het eerste prototype

Het eerste prototype was relatief snel gemaakt en toonde al snel aan dat er nog diverse bugs in de zelf ontwikkelde core zaten. Een grappig bijeffect was dat deze core wel een aantal illegale opcodes ondersteunde. Er was gezegd dat de illegale opcodes een bijproduct zijn van de originele opcodes en in dit geval werd het bewijs geleverd. Een vluchtig onderzoek toonde aan dat niet alle bekende illegale opcodes aanwezig waren maar dat is ook niet zo verwonderlijk als je alleen al kijkt naar hoe de 6502 en 65GZ02 ontwikkeld werden.

De volgende stap was te bepalen wat de nieuwe processor allemaal zou moeten kunnen. Bepaalde ideeën hadden al dusdanig vorm gekregen dat er bijna niet meer van een processor gesproken kon worden. Het eerste idee was dat het een 32-bitter moest worden: de 65GZ032. Ter vergelijking: de Motorola 68040 en Intel 80486 zijn ook 32-bitters. Maar zo'n processor komt pas tot zijn recht als hij genoeg geheugen heeft. De C64 zou dit geheugen nooit kunnen ondersteunen dus moest er een mechanisme geïntegreerd worden welke SDRAM-modules ondersteunt. De C64 is naar huidige maatstaven ook beperkt in zijn mogelijkheden om externe apparatuur aan te sluiten zoals diskdrives, harde schijven en cd-rom spelers. Een verbetering van de video-output zou

ook beslist geen kwaad kunnen. Na veel wikken en wegen en een hoop technische discussies is besloten om ook een PCI en een 16-bits ISA-bus aan de processor toe te voegen. Dit stelt de gebruiker in staat om op een zeer eenvoudige en goedkope manier zijn 20 jaar oude C64 met bijna de nieuwste technische snufjes uit te rusten.

Jeri Ellsworth

In eerste instantie was de 65GZ032 alleen voor de C64 bedoeld en wel als vervanger van de 6510 processor. Nu is Gideon niet de enige die bezig is om de C64 verder te ontwikkelen. De Amerikaanse Jeri Ellsworth is twee jaar geleden begonnen met het ontwikkelen van een opvolger voor de videoschip van de C64. Deze chip zou het onder andere mogelijk maken om veel betere resoluties te halen en wel op een VGA-monitor. Maar in de loop van de tijd is het project nogal uitgegroeid en dit resulteerde uiteindelijk in de CommodoreOne (ook wel C=1), oftewel een C64-kloon maar dan veel beter. Ook dit project is in FPGA gerealiseerd maar met één uitzondering: de processor. Jeri had geen tijd en kennis genoeg van de 6502 processor om ook hier nog een core voor te ontwikkelen en heeft toen de 65816 gebruikt. In de Commodore wereld kent iedereen bijna iedereen en het duurde niet lang of Gideon en Jeri waren op de hoogte van elkaars ontwikkelingen. Hieruit vloeide voort dat de door Gideon ontwikkelde 65GZ032 ook op de expansionport van de C=1 aangesloten kon worden. Op deze wijze had Jeri meteen haar processor probleem opgelost.

Nu heeft Commodore meerdere computers gebouwd en helaas gebruiken deze vaak verschillende processoren.



Bron: commodore-gg.hobby.nl

Gelukkig zijn ze wel op de 6502 gebaseerd. De verschillen bleken zo klein te zijn dat Gideon besloot de print dusdanig te maken dat de 65GZ032 ook de 8502 (C128), 8501 (C16, Plus4) en 6502 (VIC-20) en andere kon vervangen. De laatste ontwikkeling had tevens een bijkomend voordeel: door de bredere inzetbaarheid vergroot je automatisch de markt (6502: Atari, Apple III). Voordeel hierbij is dat met de productie van grotere hoeveelheden printplaten de prijs zakt waardoor meer mensen belangstelling krijgen en er

ook meer interesse komt om er software voor te schrijven.

Resumerend, in principe is de C=1 af en zal het eerste prototype van de 65GZ032 processor binnenkort worden geproduceerd. Verder is er een eerste aanzet voor 65GZ032 assembler en deze stelt andere programmeurs in staat om hun bestaande 6502 code, daar waar dat winst oplevert, in 65GZ032 code om te zetten. We zullen u over de laatste ontwikkelingen op de hoogte houden.

Info op <http://commodore-gg.hobby.nl/>

De CommodoreOne.



THE KIM-1

by
Gil Parrish

What was the FIRST Commodore computer? To understand the answer to that question, you need to

visualize the early days (starting around 1975) of microcomputing. This was not a time when you bought a machine, plugged it in, and were ready to go. It was an era in which engineers or hobbyists with electronic experience (perhaps obtained from ham radio activities) built their own systems from scratch or assembled "kits" of electronic parts to achieve a functioning (if primitive) computer. Such systems typically had Intel 8080 or Motorola 6800 CPUs.

Meanwhile, electronic calculators were an established product, and companies in this area included Commodore Business Machines and another called MOS Technology. MOS made some of its own chips; Commodore did not, and instead bought from other suppliers including MOS. To achieve some vertical integration, Commodore bought part of MOS, but MOS remained an independent company. And the principals at MOS, looking at the growing market for microprocessor chips, concluded that the company could make its own CPU. The resulting chip, the 6502, was similar to the 6800, but had some improvements and was (more importantly) FAR cheaper. Since industry pundits seemed to like the 6502 and were wondering out loud when the chip would end up in computer "kits", MOS decided to market its own kit-type computer in 1976; but, being a company that assembled finished calculators, MOS decided to do the assembly itself and sell only finished computers.

The result was the KIM-1. If you find one today, and do not notice the KIM-1 name in the

upper right-hand corner, you may well mistake it for a simple circuit board (not unlike a motherboard removed from a Commodore 64) instead of a "whole" computer. The board, being about the length and width of a letter-size sheet of paper, is populated on the front with a 6502 processor chip, two 6530 1K ROM chips, enough RAM chips to give 1K of memory, and various other transistors, resistors, and components. The left side has two 44-trace edge cards, each very similar to the edge card on cartridges designed for the VIC-20. The back is nothing special (just a normal circuit board), except for the six rubber "feet" that put some space between the KIM and any surface on which it sits. Indeed, the only items that truly distinguish a KIM from an ordinary circuit board are a calculator-looking keypad mounted on the front in the lower right-hand corner, and a 6-digit light-emitting diode (LED) display right above that. Those are the input and output units of this "single board computer", as this class of devices was called.

A KIM may or may not come with other attachments. MOS provided a 44-pin connector to slip onto one of those edge cards, but any devices you find wired to the connector are add-ons by a previous owner. Not even the power supply was standard equipment: the user had to buy or make a power supply of the proper size (5VDC, 1 to 1.2 amps; with 12VDC, 50 to 100 mA, needed for cassette operations) and solder all wires to the proper pins. Further, while the unit's built-in programming (its "Keyboard Input Monitor"-- notice what the initials spell) supported connection of both an ordinary home cassette recorder for program

storage and retrieval, and a teletype terminal if the user got tired of that calculator keyboard and LED display, the actual interfacing required do-it-yourself cables and additional soldering. Thus MOS continued the general assumption that even the fully-assembled KIM would end up in the hands of people with enough electronic experience to handle wiring and such.

If the hardware side was not complicated enough, the software side presented even more problems. There was no programming language like BASIC built in; instead, users had to program in hexadecimal (Base 16) machine language! That KIM keypad had keys 0 through 9 and A through F (with the latter being the additional 6 "numbers" required for a hexadecimal numbering system), with a few additional buttons to perform functions like resetting the machine ("RS"), entering address mode ("AD"), switching to data entry mode ("DA"), and so forth. Each step in entering a program required feeding in the four digit hexadecimal memory address where you wanted an instruction to reside (which was displayed on the 4 leftmost LED digits), followed by entering the two digit hexadecimal instruction itself (displayed on the two LED digits on the right). And since a program could involve lots and lots of steps-- well, this was just not computing intended for the lazy or faint of heart.

The final problem was that, even if you understood how to interface and program a KIM, what could you really DO with it? Most home users today utilize computers for word processing, playing games and accessing the Internet; on the KIM, word processing was not a possibility, the Internet didn't exist, and how many interesting games work within the confines of a 1K memory and a 6-digit LED display? True, a hobbyist or engineer with sufficient financial resources could use the KIM as just the starting point for a custom system

with plenty of additional memory, peripherals, and so forth; but, that hardly helped the ordinary user who bought the KIM because of a desire for a relatively cheap home computer.

The main benefit of the KIM was its educational impact. The user was not simply given a "black box" with mysterious computer components inside. KIM computing put the user at the "nuts and volts" level with respect to both hardware and software. A user who mastered a KIM truly understood basic computer principals, and could carry that knowledge forward to other computer systems and projects. In that regard, the most valuable item MOS provided may not even have been the KIM itself, but the hundreds of pages contained in the accompanying User Manual, Hardware Manual, Programming Manual, System Schematic and other materials. In that light, the KIM itself was primarily useful as a demonstration tool to put theoretical knowledge of computing to immediate use.

To complete the history, the KIM's success mightily impressed Commodore, so much so that Commodore bought the rest of MOS and continued for years to market the KIM. (So, any KIM-1 you find may be marked in the upper right-hand corner "MOS", if an early one, or "Commodore" and "C= . MOS", if a later one. It is also possible some KIMs have Rockwell markings, since Rockwell marketed some of the units.) Further, Commodore went on to make its own PET/CBM line of computers which, using an approach quite different from MOS's, were "plug and play" systems not requiring the user to do hardware wiring or to understand machine language concepts. The 6502 (and the similar 6510) went on to become the chip of choice in many early home computer systems, including the Apple, Atari and all other Commodore 8-bit models. KIM production stopped by mid-1981, around the time the VIC-20 revolutionized the low-end computer market; and, many KIMs began gracing closets

not long after that. But there are users out there who still fondly remember the KIM as the solid foundation of all their subsequent computer endeavors. The little devices deserve a better fate than ending up, unrecognized, in bins of spare parts.

Refill continued

When I'm strapped for time, I buy their remanufactured ink carts: Black (\$29.99):
http://www.microcenter.com/single_product_results.phtml?product_id=0111756

Color (\$34.99):

http://www.microcenter.com/single_product_results.phtml?product_id=0111757

"The real thing", for comparison: Black (\$34.95):

http://www.microcenter.com/single_product_results.phtml?product_id=0005825

Color (\$41.99):

http://www.microcenter.com/single_product_results.phtml?product_id=0005824

One of their stores is right down the road from me, but I imagine the web site is just as good. Hope that helps!

- Dave

VCF Europa 4.0



The fourth annual Vintage Computer Festival Europa is being held on May 3rd and 4th at the Mehrzweckhalle des ESV Munchen Ost in Munich, Germany.

VCF co-producer Hans

Franke hosts another fine event that brings together Europe's most celebrated old machines. Lectures, exhibits, and some damn good German beer (served onsite!) await you. More information on VCF Europa 4.0 can be found here: <http://www.vcfe.org/>

Join us for some geeky fun, European style! The FOURTH annual European Vintage Computer Festival awaits you! Our mission is to encourage the preservation of obsolete computer hardware and software of years past, to promote interest in researching and documenting the history of the computer age, ... and to have fun playing with old iron.

The Vintage Computer Festival is not only a fixed entry in the Silicon Valley timetable, but it has also become an European event, celebrating our computer heritage.

Let us return to those thrilling days of yesteryear, when geeks were geeks and floppies were really floppy.

VCFe Live

All speeches will be transmitted live over the Internet. Two webcams will provide actual footage from the exhibition area and the speeches. Exhibition Dozens of old (but still not obsolete) computers to be viewed and touched. No barrier between you and your dreams... (It may be a good idea to ask the exhibitor before dismantling his system :)

Speeches

A series of speeches will be given to describe some systems in detail, discuss classic developments from today's perspective or other topics of interest to collectors.

There will also be a VCFe-Excursion to a hands-on, live demonstration of a real,

classic, big, number-crunching supercomputer.

Flea Market

No system will be ever completely debugged, so we are offering space in the hall to vendors to sell and trade historic gear. Anything is allowed - as long as the item is computer-related and more than 10 years old.

Peoples' Choice Award and Giveaway

All visitors are called to vote for their favourite piece of history. And unlike a constitutional poll, you may even win great stuff.

Are you ready for the NERD TRIVIA CHALLENGE? The Nerd Trivia Challenge is your chance to prove just how much of a geek you really are. You're pitted against two other nerds in a game-show style contest of computer history trivia. If you end up the Alpha Geek, you'll walk away with fame (and a great prize). Think you're up to the challenge?

Where, When and What ?

Where

Mehrzweckhalle des ESV München Ost
Baumkirchner Strasse 57
81673 Munich

When

May 3rd, 2003 from 1000 to 1830
May 4th, 2003 from 1015 to 1700

Admission

Pre-Registration - At the Door

One Person --

One Day -	EUR 5	
Both Days -	EUR 5	EUR 8

Family --

One Day -	EUR 8	EUR 10
Both Days -	EUR 10	EUR 15

The Internet-enabled Contiki Desktop OS

Date: 10 Mar 2003 08:56:07 +0100

From: Adam Dunkels <adam@sics.se>

Hi! I am very proud to announce the availability of the first version of the Internet-enabled Contiki operating system and desktop environment! This first version runs on the Commodore 64, but ports to a bunch of other systems such as the VIC20, CBM PET, Plus/4, Apple II, Atari 8-bit, NES, Atari Jaguar, etc., are under rapid development. The first version of Contiki includes:

- * Multitasking kernel.
- * Windowing system with themeable GUI toolkit.
- * Screensaver.
- * TCP/IP networking with RS-232/SLIP or Ethernet (PPP support is under development).
- * Personal web server for convenient file transfers (currently only on C64/TFE systems).
- * Simple Telnet client (instead of the web server on RS232-systems).
- * Web browser (the world's first true web browser for 8-bit systems!). Contiki is written almost entirely in C and is therefore highly portable. See the Contiki web site for more information, a FAQ, lots of screenshots and for downloading the binaries or the source code:
<http://dunkels.com/adam/contiki/>

Contiki was written in the C programming language by me (Adam Dunkels) with encouragement, suggestions and support from Ullrich von Bassewitz, author of the cc65 C compiler. The VIC-20 port has been made in cooperation with Anders Carlsson, the Atari 8-bit port in

cooperation with Christian Groessler, and the NES port together with Groepaz/Hitmen. Chris Morse is currently working on the Apple II port and Matthias Domin is working on the Atari Jaguar port. Lawrence Chitty is working on PPP support and on porting Contiki to the Sharp Wizard PDA, Fabio Fumi is porting selected parts of Contiki to the Casio PocketViewer, and James Dessart is porting Contiki to the Tandy CoCo. Mikael Backlund has drawn the Contiki desktop icons. Huge thanks to all for making this possible!

Adam Dunkels <adam@sics.se>

<http://www.sics.se/~adam/>

C1

--- Six of DLoC wrote:

Hi,

Any word on a solid release date for the C1 or its availability?

It looks like I've finished the 6502 core that will be responsible for the hard disk and floppy control. I'm single stepping it through the code that configures the fpga's. It recognizes the file system on the hard drive (fat32/fat16), looks at the keyboard buffer to select 1 of 10 configuration, selects the appropriate file to configures the fpga, copies the code to be executed (ie kernel roms), loads new drive controlling code (ie 1541/81/hd support) and then starts the 65816.

This core is the corner stone to the entire design and it took 4weeks more than I expected, but it turned out really nice.

Once the large fpga is configured I can test the SDRAM wiring and then produce the boards. You can get a board from me as soon as I get back.

Jeri--

web site updated

Date: Thu, 06 Mar 2003 09:27:27 -0500

From: Geoff Sullivan <sunfish@shell.gis.net>

I've spent some time updating, cleaning out bad links, and adding net stuff to the web site I maintain at <http://c128.port5.com>. This site hosts the COPS page as well as information on: JOS/WiNGs, Commodore interfaces with other computers, networking, UDS-10 device, CMD HD backup project, Commodore CD project

Take a look and send comments!!

Geoff

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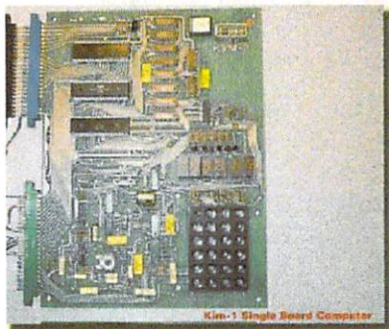
G. Sullivan sunfishATshell.gis.net

<http://www.sunfishdesigns.com>

Sent with QuickSend for WiNGs.



PreRelease 9.11



Kim-1 Single Board Computer

THE KIM-1

CLASSIFIED ADS

Subscribers may place non-commercial classified advertising in The Infinite Loop at a cost of US\$2.00 per issue. Your ad may contain up to 150 characters and a small photo. Send ad payment to: Infinite Loop Ads, c/o Earl-Y Designs, P.O. Box 746, Grand Junction, CO 81502 (please make checks out to EarlY Designs) or you can make payment at my website www.earl-ydesigns.com or PayPal and use a credit card through paypal using my e-mail address: earlw@earl-ydesigns.com. Below are some commercial samples of how your ad may appear.

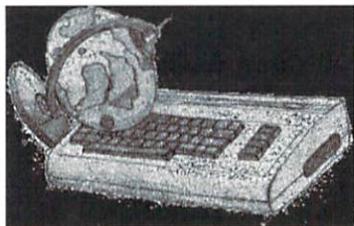
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Commodore only Zone

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